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MARSHALL & MELHORN, LLC
FOUR SEAGATE - EIGHTH FLOOR
TOLEDO, OH 43604

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/765,256
Filing Date: January 26, 2004
Appellant(s): VARANASI ET AL.

Mark Hixon
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7/13/09 appealing from the Office action mailed 1/15/09.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

3,892,888	Halaby et al.	7-1975
2002/0135099	Robinson et al.	9-2002
6238738	McCurdy	5-2001
5,780,372	Higby	7-1998

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-14, 16-20, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halaby et al. (3,892,888) in view of Robinson et al. (2002/0135099) or vice versa and further in view of McCurdy (6,238,738).

Halaby discloses a method of making a magnetite film or gamma ferric oxide film magnetic recording and storage device comprising the step of depositing a film of elemental iron, alpha ferric oxide, or magnetite on an inorganic and non-magnetic substrate by chemical vapor deposition (col.1 lines 36-49). The substrate can be in the form of a disk, tape, rod, drum or wire and can be aluminum, glass, glass-ceramic or ceramic that can withstand without damage the high temperatures encountered in the method of this invention (col.2 lines 15-23) and can be heated to 300°C (col.2 lines 52-54). The precursor can be ferrocene and can be transported by the use of an inert or reducing carrier gas (col.2 lines 54-69) and the carrier gas can be oxygen (col.6 lines 1-18). It should be noted that the final film can be alpha ferric oxide (col.5 lines 63-65). Nitrogen can be used as an inert gas (col.4 lines 1-25). However, the reference fails to teach a float glass process.

Robinson discloses a method of using float glass having a SnO.sub.2 enriched surface, wherein the method includes the steps of providing an ionic release agent externally to the tin oxide surface (par 9). Specifically, the reference teaches the conventionality of making a float glass wherein the molten glass is allowed to float on a liquid pool of tin which results in one side of the glass having a tin enriched surface as opposed to the air-side of that same piece of glass

(par 54). A metal oxide coating such as Fe_2O_3 can be formed (par 55). In one embodiment, two or more layers are contemplated (par 55). It would have been obvious to incorporate the float glass substrate of Robinson in Halaby's process with the expectation of obtaining similar results.

In addition, Robinson's process is silent on specific precursors for forming Fe_2O_3 layers. Halaby discloses the conventionality of using ferrocene and an oxidant. It would have been obvious to incorporate Halaby's precursors in Robinson's process with the expectation of success.

In newly amended claim 1, the applicant requires premixing the precursors to form a uniform gaseous precursor mixture and then directing the precursor mixture toward the surface. McCurdy specifically teaches of depositing a metal oxide coating on flat glass by preparing a precursor mixture containing the corresponding metal tetrachloride and an organic oxygen containing compound as a source of oxygen for formation of the metal oxide and then introducing the precursor mixture into the coating chamber to cause deposition on to the hot glass surface (col.4 lines 18-35). In one embodiment, a float glass procedure is utilized (col.9 lines 38-52). It is noted that McCurdy specifically teaches of forming a precursor mixture then introducing the mixture to the coating chamber to form a metal oxide. It would have been obvious to utilize the precursor mixture in the process of Halaby and Robinson with the expectation of obtaining similar results because McCurdy teaches the conventionality using a precursor mixture to form the metal oxide. The same issue applies to independent claim 16.

The limitations of claims 2-3, 13 have been addressed above.

In claim 4, the applicant requires a cooling step. Eventually the final product will be cooled to room temperature thus meeting the limitation.

In claim 5, the applicant requires a specific inert carrier gas such as nitrogen. This limitation is met in col.4 lines 8-9.

In claim 6, the applicant requires a specific deposition rate. Halaby teaches a similar deposition rate in col.3 lines 1-36. Regardless, it would have been obvious to have a fast deposition rate with the expectation of improving deposition efficiency.

In claims 7-12, the applicant requires a specific concentration. Halaby teaches a similar concentration in col.4 line 1 – col.5 line 7. Regardless, it is well known to vary composition to optimize the characteristics of the final product and hence, would have been obvious to vary the composition do with the expectation of obtaining the desired final properties.

In claim 14, the applicant requires dissolving ferrocene in a solvent. Halaby teaches of dissolving ferrocene in benzene (col.2 lines 66-67) and thus meets the limitation of the claim.

In claim 16, the applicant requires an additional coating. This is met in col.7 lines 1-52.

The limitations of claims 17-20 and 29 have been addressed above.

Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halaby et al. (3,892,888) in view of Robinson et al. (2002/0135099) or vice versa and further in view of McCurdy (6,238,738) and Higby (5,780,372). The combination of Halaby and Robinson disclose a method of forming a ferric oxide film on a glass substrate using ferrocene as noted above while McCurdy teaches the conventionality of using a precursor mixture. However, the references fail to teach the use of iron oxide coatings in architectural glazings.

Higby teaches the conventionality of using iron oxide in architectural glazings. It would have been obvious to utilize the coating produced by the combination of Halaby and Robinson for architectural glazings because Higby teaches the conventionality of doing same.

(10) Response to Argument

Appellant's arguments are primarily directed to the issue that the references cannot be combined (p.12 3rd paragraph, p.12 4th paragraph, p.13 first full paragraph, p.15 2nd and 3rd full paragraphs; paragraph bridging pp.15-16).

Appellant's first argues that there is nothing in Halaby and Robinson to suggest premixture of the reactants to form a uniform gaseous precursor mixture and the subsequent delivery (p.12 lines 10-14).

The examiner agrees in part. The examiner has conceded that Halaby and Robinson fail to teach using a premixture and cited McCurdy to address this deficiency (paragraph bridging pp.3-4 of the Final rejection dated 1/15/09). Specifically, McCurdy teaches the conventionality of using a precursor mixture to form metal oxide in a float glass process, a fact that appellant has not taken issue with. It is the examiner's position that it would have been obvious to utilize the precursor mixture in the process of Halaby and Robinson with the expectation of obtaining similar results because McCurdy teaches the conventionality using a precursor mixture to form the metal oxide. It is noted that that there is no factual evidence of record precluding the success of combining the references other than the appellant's assertion.

Appellant next argues that Robinson and McCurdy are directed to two different subject areas and are not properly combinable with Halaby (paragraph bridging pp.12-13). Specifically,

appellant argues that Robinson is not combinable with Halaby because it is directed to the production of a mold and that McCurdy is not combinable with Halaby because it is directed to the production of architectural glazings.

The examiner disagrees. It is first noted that metal oxide coatings can be utilized in a variety of applications as noted by the references above. To that end, it is noted that the claimed invention is not limited to any specific application. Secondly, both reference teach the conventionality of forming metal oxide coatings using a float glass process. One skilled in the art would realize that regardless of the final product, the processes are operable and suitlabe to forming metal oxide coatings in a float glass process.

With respect to Robinson, it is noted that Robinson teaches the conventionality of using metal oxide coatings in a float glass process, a fact admitted by the appellant (p.12 1st paragraph). It is the examiner's position that the Robinson is properly combined with Halaby.

With respect to McCurdy, the appellant's statement that McCurdy is limited to the production of architectural glazing is not an accurate description of the reference. The examiner does agree that McCurdy teaches that the process can be used in architectural glazings (col.5 lines 36-47) but clearly can be used to coat glass bottles, containers and hot ribbons of glass (background in col.1 lines 25, 37 and col.2 line 59). Regardless, McCurdy teaches the conventionality of using a precursor mixture to form metal oxide films and thus is properly combinable with Halaby and Robinson. Again, it is noted that there is no factual evidence of record that precludes the lack of success in combining the references. Hence, appellant's assertion that the references are not combinable appears to be mere speculation in the absence of any factual evidence provided.

Appellant argues that Halaby is not combinable with Robinson because Halaby is directed to a batch process and are incompatible with a float-glass process (p.13 first full paragraph).

The examiner does not take issue with appellant's assertion. But it is noted that Halaby was cited to show the conventionality of forming ferric oxide films by using specific precursors and Robinson was cited to show the conventionality of using metal oxide coatings in a float glass process. Appellant has not cited any factual evidence that Halaby's precursors cannot be used in Robinson's float glass process or vice versa. Hence, appellant's arguments that the references are not combinable is not substantiated. Assuming arguendo that the ferrocene of Halaby cannot be used in the float glass process of Robinson, the examiner questions how the appellant's claimed method would work unless there is some critical feature not presently recited in the claims.

Applicant's arguments regarding claims 16-20, 25-26 are substantially repeated on pp.14-16. These issues have been addressed above.

In summary, appellant's arguments are directed to the issue that the references cannot be combined as opposed to the lack of any particular limitation. It is the examiner's position that the references are properly combined and submits that the art rejections are tenable.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Bret Chen/
Primary Examiner, Art Unit 1792

Conferees:

/Timothy H Meeks/

Supervisory Patent Examiner, Art Unit 1792

/Michael Barr/

Supervisory Patent Examiner, Art Unit 1792